

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application:

LISTING OF CLAIMS:

Claims 1 to 9. (Canceled).

10. (Currently Amended) A fuel injector for direct injection of fuel into a combustion chamber of an internal combustion engine, comprising:

a valve seat body having a valve-seat surface;

a valve-closure member, which cooperates with the valve-seat surface of the valve-seat body to form a sealing seat; and

at least one spray-discharge orifice provided downstream from the sealing seat, which has a guide region and an exit region arranged at a discharge-side end, the exit region widening at least one of i) in a stepped manner by at least one first step, and ii) at least in part continuously, beginning with a transition from the guide region into the exit region;

wherein a fuel jet, which emerges from the guide region at the transition and widens uniformly at a jet angle, passes the discharge-side end of the exit region while maintaining a gap between the fuel jet and an inner wall of the exit region, and, after a distance s , the gap having a dimension that is greater than zero, and wherein a first volume remains in the exit region between the fuel jet and the inner wall of the exit region, and

wherein the first volume has a longitudinal cross-sectional area (A_g), and a coefficient (B) characterizing the first volume is calculated according to the following

equation:
$$B = \frac{|D \cdot \pi \cdot A_g|}{|d \cdot \pi \cdot s|}$$

D being a first diameter between centers of mass of the longitudinal cross-sectional area A_g , d being a second diameter of the fuel jet at a midpoint of distance s , and the coefficient B being not smaller than 0.5 and not greater than 2.5.

Claim 11. (Canceled).

12. (Previously Presented) The fuel injector as recited in claim 10, wherein the gap dimension is not greater than 0.3 mm and not smaller than 0.1 mm.

13. (Previously Presented) The fuel injector as recited in claim 10, wherein the guide region and the exit region are arranged coaxially with respect to one another.

14. (Previously Presented) The fuel injector as recited in claim 10, wherein the transition widens conically in a discharge direction.

15. (Previously Presented) The fuel injector as recited in claim 10, wherein the exit region is cylindrical.

16. (Previously Presented) The fuel injector as recited in claim 10, wherein the guide region projects into the exit region .

17. (Previously Presented) The fuel injector as recited in claim 16, wherein, at a discharge-side end of the transition, the exit region at first widens continuously counter to the discharge direction.

18. (Previously Presented) The fuel injector as recited in claim 10, wherein the exit region is cylindrical in a region of the discharge-side end.